

Patent  
42479-8300

**IN THE CLAIMS:**

1. (Currently Amended) A particulate matter analyzer ~~comprises~~ comprising:  
a collecting unit for collecting particulate matter in a sample gas of only a predetermined size range on a filter;  
a mass measuring unit for measuring ~~the~~ mass of the particulate matter while on the filter; and  
a composition analyzing unit for analyzing ~~the~~ composition of the particulate matter while on the filter, wherein the measurement of mass and composition ~~can be done in a sequential manner in one instrument~~ is performed continuously on the same particulate matter on the filter within the particulate matter analyzer.
2. (Currently Amended) The particulate matter analyzer of Claim 1, wherein the composition analyzing unit is configured to analyze the composition of the particulate matter by irradiating a measuring spot formed on ~~the~~ filter with radioactive rays or electron beams such as X-rays or electron beams.
3. (Currently Amended) The particulate matter analyzer of Claim ~~1~~ 2, wherein the collecting unit is configured to enable the sample gas to pass through ~~the~~ filter, thereby forming the measuring spot on the filter, and the filter is made of a material which substantially ~~passes all of the X-rays~~ does not emit fluorescent X-rays.
4. (Original) The particulate matter analyzer of Claim 3, wherein the filter has an antistatic electricity characteristic.

42479.8300.PRI.CEN.RV.V467264

Patent  
42479-8300

5. (Currently Amended) The particulate matter analyzer of Claim 3, wherein the unit for collecting particulate matter includes a filter holding mechanism with a plurality of individual filter holder units, and wherein the holder units can progressively and automatically position individual filters at a sample taking station which permits the sample gas to pass through selected filters.

6. (Currently Amended) The particulate matter analyzer of Claim 1, wherein the mass measuring unit is configured to measure the mass of the particulate matter by using one of ~~an X-ray~~ a beta-ray absorption method, a pressure loss method, and a light scattering method.

7-13. (Cancelled)

14. (Currently Amended) A system for collecting particulate matter in a fluid and analyzing ~~[[the]]~~ mass of the particulate matter and its composition, comprising:

a collecting unit including a source of filter members for performing a plurality of sequential measurements and a sample fluid supplying unit for directing a predetermined amount of a sample to a filter member to separate particulate matter of a predetermined size range from the sample fluid;

a mass measuring unit for measuring the mass of the particulate matter which on the filter member;

a composition analyzing unit for analyzing the composition of the particulate matter while on the filter member;

a ~~transport~~ transporting unit for moving one of the plurality of filter members from the sample fluid supplying unit to respectively the mass measuring unit and the composition analyzing unit; and

42479.8300PRILEXV487204

Patent  
42479-8300

a controller unit for automatically enabling the collecting unit, mass measuring unit, composition analyzing unit and transporting unit, wherein a plurality of measurements with a plurality of filter members ~~can be sequentially performed~~ are carried out continuously on the particulate matter over a predetermined time period.

15. (Original) The system of Claim 14, wherein the source of filter members includes an elongated roll of filter material and a feeding reel unit which positions a predetermined length of filter material to operatively engage the sample fluid supplying unit.

16. (Original) The system of Claim 14, wherein the source of filter members includes a filter holding mechanism which rotates a plurality of individual filter members to operatively engage the sample fluid supplying unit.

17. (Currently Amended) The system of Claim 14, wherein the filter members have an antistatic characteristic~~[[/]]~~.

18. (Original) The system of Claim 14, wherein the filter members include a predetermined reference material other than a target material to be collected to enable a calibration of the composition analyzing unit.

19. (Currently Amended) The system of Claim 14, wherein the mass measuring unit and the composition analyzing unit are within the same housing and measure the particulate matter at ~~[[the]]~~ a same location within the housing.

20. (Cancelled)

Patent  
42479-8300

21. (Previously Presented) The particulate matter analyzer of Claim 4, wherein the filter includes a porous layer made of a fluororesin, and a gas-permeable reinforcing layer which is provided on a surface of the porous layer.

22. (Currently Amended) The particulate matter analyzer of Claim 21, wherein the reinforcing layer is made of a non-woven fabric which consists of any one or a plurality of materials selected from polyethylene, polyethyleneterephthalate, nylon, polyester, and polyamide.

23. (Previously Presented) The particulate matter analyzer of Claim 22, wherein the filter includes a predetermined reference material other than a target material to be collected to enable a calibration of a particulate matter analyzer processing the collected target material on the filter.

24. (Currently Amended) The system of Claim 14, wherein the filter members include a non-woven ~~elect~~ fabric low in hygroscopicity.

25. (Currently Amended) The system of Claim 24, wherein the non-woven ~~elect~~ fabric consists of one of polyethylene, polyethyleneterephthalate, nylon, polyester, and polyamide.

26. (Currently Amended) The system of Claim 14, wherein the filter members include a porous layer of a glass fiber, a reinforcing layer, and a predetermined reference material other than a target matter to be collected to enable a reference comparison when the collected particulate matter on one of the filter members is ~~subject~~ subjected to an analysis to determine ~~[[the]]~~ quantity of the target material.

42479-8300-PRJCENTRV467204

Patent  
42479-8300

27. (New) A particulate matter analyzer comprising:

a collecting unit for collecting particulate matter in a sample gas including a size separator unit for supplying a predetermined size and smaller of particulate matter, an elongated filter member having an upper and a lower transporting unit for moving a predetermined length of the filter member to receive the particulate matter from the size separator unit;

a mass measuring unit for measuring mass of the particulate matter as deposited on the filter member;

a composition analyzing unit for analyzing composition of the particulate matter as deposited on the filter member; and

a controller unit for automatically enabling the collecting unit, the mass measuring unit, the composition analyzing unit and the transporting unit to perform a plurality of measurements on a series of predetermined lengths of filter member automatically over a predetermined time period without an operator.

28. (New) The particulate matter analyzer of claim 29 wherein measurement of the mass and analyzing the composition is performed on the deposited particulate on the filter member when a predetermined length of filter member is held stationary at one location by the transporting unit.

29. (New) The particulate matter analyzer of claim 29 wherein the filter member includes, within each predetermined length of filter member, a calibration reference material to enable a calibration of the composition analyzing unit.

Patent  
42479-8300

30. (New) The particulate matter analyzer of claim 31 wherein the mass measuring unit and the composition analyzing unit are within a single housing and measure the particulate matter at the same location on the filter member within the housing.

31. (New) The particulate matter analyzer of claim 32 wherein the filter member has an antistatic electricity characteristic.

42479.8300/PATENT/RYM67204